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A new *Entoloma (Basidiomycetes, Agaricales)* from Tasmania

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Abstract — A description is given of a new *Entoloma* species from *Eucalyptus* forest with *Leptospermum* understorey in Tasmania, Australia, with striking yellow lamellae. Notes are given on similar species on a worldwide basis.

Key words — *Entolomataceae*, mycorrhizal, *Myrtaceae*, new species, taxonomy

Introduction

In Tasmania, numerous species of *Entoloma* and related genera can be found, of which many are new to science. Previous papers on the family *Entolomataceae* in Tasmania were confined to the genera *Rhodocybe* (Baroni & Gates 2006) and *Entoloma* (Gates & Noordeloos 2007). Although, in general, the mycota of Tasmania has affinities with that of New Zealand, it is remarkable that only a limited number of *Entoloma* species are common to both places (Horak 2008). Whether this is due to the absence of eucalypts in New Zealand forest is well worth investigating, especially since it has been proved that *Entoloma* may be (in part) mycorrhizal (Agerer & Waller 1993, Agerer 1997, Kobayashi & Hatano 2001). Many Tasmanian species find counterparts in the flora of South-east Asia (Horak 1980, Noordeloos & Hausknecht 2007, Manimohan et al. 2006).

Materials and methods

Collections of the new species were made from two sites, one in north-eastern Tasmania and the other in south-western Tasmania. The north-eastern site,

classified as a high altitude rainforest at an elevation of 850 m is dominated by *Eucalyptus delegatensis* R.T. Baker with a *Leptospermum lanigerum* (Aiton) Sm. understorey, both of these species being from the *Myrtaceae*, which are known to form ectomycorrhizas (Smith & Read 2008). The south-western site, classified as a low altitude wet sclerophyll forest with rainforest understorey species, is dominated by *Eucalyptus obliqua* L'Hér. with a *Leptospermum scoparium* J.R. Forst. & G. Forst. and *Melaleuca squarrosa* Donn ex Sm. understorey, all in the family *Myrtaceae*.

Fresh collections were photographed and described with colour notations according to Kornerup & Wanscher (1978). Mounts for microscopic analysis were made from fresh and dried material and examined in water, 10% NH_4OH, 3% KOH, or ammoniacal Congo Red. All measurements were made in 10% NH_4OH or 3% KOH. For basidiospore measurements, the hilar appendix was excluded. The spore quotient Q refers to the length divided by the width of an individual spore. Drawings of basidiospores, cystidia and other microscopic structures were made with the aid of a drawing tube attached to a light microscope. The holotype specimen is deposited in the Tasmanian Herbarium (HO); an isotype is deposited at the National Herbarium of the Netherlands, Leiden (L). Collections cited are deposited at HO or L as designated.

Taxonomic description

Entoloma mathinnae G.M. Gates, B.M. Horton & Noordel., **sp. nov.** Fig. 1.
MycoBank 512019

Habitus tricholomatoideus. Pileus 40–80 mm, pallide brunneus, glaber. Lamellae distantes, crassae, luteae. Stipes 40 × 25 mm, albidus demum pallide brunneus, glaber, fibrillosus. Sporae 6.5–8 × 6–8 µm, isodiametrae. Cystidia absentia. Pileipellis (ixo-)cutis hyphis 2.0–4.0 µm latis pigmento brunneo. Fibulae abundantes. ***Holotypus****: Australia, Tasmania, Mathinna, Ben Ridge Rd, 12 Feb. 2008, G. Gates E2263 (HO548298, isotypus L).*

Etymology: From Mathinna, a 19th Century Aboriginal girl, a victim of the early interactions of Aboriginal and European cultures, after whom the type locality district was named.

Macrocharacters — Pileus 40–80 mm broad, convex to plano-convex with low umbo, not distinctly hygrophanous, light yellow-brown (5D5), paler towards margin, smooth, glabrous or slightly viscid becoming rimose with age; Lamellae crowded, L = about 80, l = 3–5, adnate-emarginate, ventricose, up to 10 mm broad, bright lemon yellow (about 3A-B6), with entire, concolorous edge; Stipe 50–85 × 15–20 mm, cylindrical, tapering at base, white or pale brown, occasionally with a distinct grey-violet (16E3) hue, innately fibrillose all over, solid then fistulose; Context firm, white; Smell and taste indistinct, fungoid.

Microcharacters — Basidiospores 6.5–8 × 6–8 µm, average 7.3 × 6.9 µm, Q = 1.0–1.2, irregularly 6–8 angled with thin walls and weak angles; Basidia

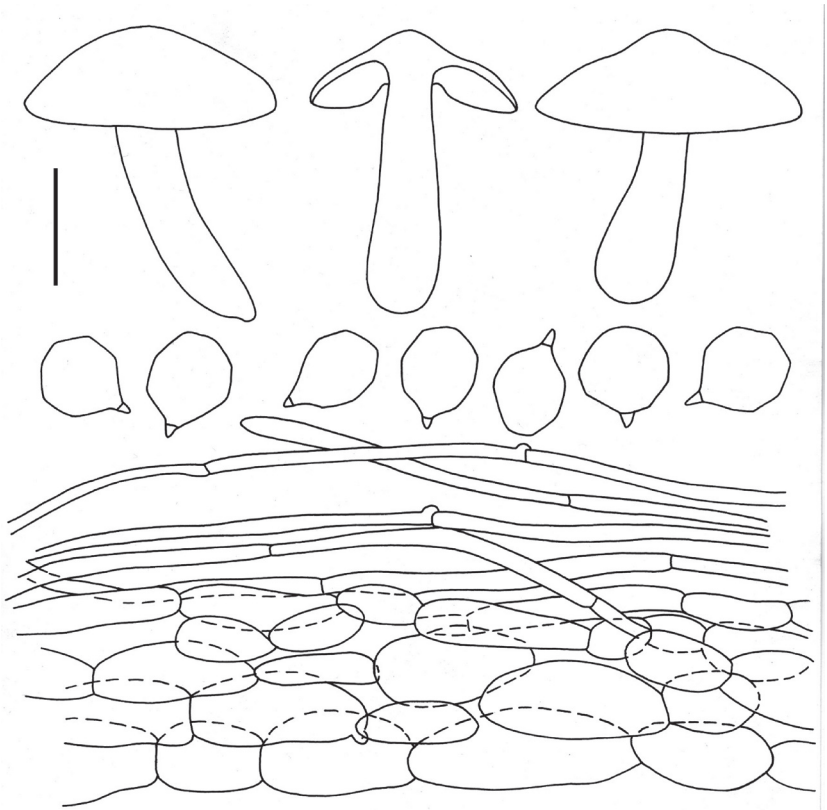

Fig. 1. *Entoloma mathinnae*. Habit, spores and pileipellis.
Bar = 10 μm (spores); 20 μm (pileipellis); and 3 cm (habit).

20–34 × 7–9 μm, 4-spored, clamped; Lamella edge fertile; Cheilo- and pleurocystidia absent; Hymenophoral trama regular, made up of short, inflated elements, 30–70 × 8–25 μm with pale yellow, intracellular pigment; Pileipellis a differentiated (ixo-)cutis; Suprapellis slightly gelatinized ixocutis of 2–4 μm wide, cylindrical hyphae; Subpellis well differentiated, made up of inflated elements, 35–80 × 8–25 μm; Pigment brown, intracellular mainly in suprapellis; Pileitrama regular, made up of inflated elements, 50–120 × 7–27 μm; Clamp connections abundant.

Ecology, range, distribution — In wet *Eucalyptus delegatensis* high altitude rainforest with *Leptospermum* understorey and in *Eucalyptus obliqua* low altitude wet sclerophyll forest with *Leptospermum* and *Melaleuca* understorey.

Representative specimens examined — **AUSTRALIA. Tasmania: Mathinna**, Ben Ridge Rd, (Lat./long. 41°21'S × 147°40'E), 12.II.2008, G.Gates E2263 (**Holotype**,

HO548298; isotype L); **same location**, 25.III.2007, B.Horton s.n. (G.Gates E2248), HO548300; **Tahune**, Two Bridges Track, (Lat./long. 43°06'S × 146°44'E), 20.V.2007, G.Gates E2267, HO548299.

Comments — *Entoloma mathinnae* belongs to *Entoloma* section *Entoloma* on account of its tricholomatoid habit, smooth pileus, and small, weakly angled spores. The bright yellow gills, without a trace of pink, are distinctive. *Entoloma manganaense* G.M. Gates & Noordel. has similar yellow gills, but differs strikingly by the darker brown pileus and blue stipe. *Entoloma cerinum* E. Horak from New Zealand also has yellowish lamellae when young, which, however, turn dark pink with age; the pileus is very dark brown, and the hyphae are clampless (Horak 2008). *Entoloma luridum* Hesler from North America has similar yellow lamellae and small spores, but differs by the almost white basidiocarps. *Entoloma sinuatum* (Pers.) P. Kumm. from Europe and North America has a quite different yellow tinge in the lamellae, and much larger, thick-walled and distinctly angled spores, which place it in *E.* section *Rhodopolia* (Noordeloos 2004). *Entoloma luteifolium* Hesler from Cuba is a small species with a squamulose pileus, typical for *E.* section *Cyanula*.

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